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ESTIMATE OF THE PETROLEUM SITUATION IN CHINA

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A survey of China's petroleum position and a discussion of the possibilities of foreign investment in China's petroleum industry.

DEPARTMENT OF STATE

Division of Research for Far East
OFFICE OF INTELLIGENCE RESEARCH

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SUMMARY

Petroleum consumption in China during the next five years, given the achievement of political stability during the period, is likely to expand to a level more than twice as high as the prewar rate. Factors contributing to this increased level of consumption include: (1) a projected expansion in China's merchant marine; (2) an increase in automotive and air traffic over the prewar rate; and (3) a modest program of industrialization that may be expected to follow the achievement of political stability. Petroluem requirements by 1962 may reach an annual rate of 18 to 20 million barrels a year.

If adequate facilities can be constructed, China's domestic oil production during the next five years may be sufficient to meet 25 percent of projected needs. Operation of former Japanese refining facilities in Formosa and Manchuria can provide China with an additional 25 percent through the processing of imported crude supplies. Nevertheless, total petroleum imports will probably exceed prewar levels in both quantity and value terms.

The attractiveness of the Chinese petroleum market to foreign oil companies, however, will depend largely on the petroleum policy adopted by China's government. In contrast to the prewar situation, China now has refining, storage, and distribution equipment sufficient to compete with

foreign oil companies in supplying the domestic petroleum market. The use of China's domestic marketing facilities in a manner discriminating against foreign competition would ultimately endanger present and future investments made by foreign oil companies in China's petroleum industry. On the other hand, a substantial investment would be needed for the reconstruction of prewar distributing equipment and the development of indigenous oil reserves, and China's lack of adequate capital resources makes such an investment impossible without foreign participation.

Since VJ-day, actions taken by the Chinese Government indicate conflicting policy trends, but it seems clear that a definite petroleum policy has not yet been evolved. Conferences between representatives of the foreign oil companies and the Chinese Government have thus far proved inconclusive. Recent developments, however, indicate that China's need for foreign capital in the rapid exploitation of its domestic petroleum resources may lead to a petroleum policy containing the basic assurances necessary for joint Sino-foreign enterprise.

ESTIMATE OF THE PETROLEUM SITUATION IN CHINA[1]

I. CHINA'S PETROLEUM REQUIREMENTS

A. Prewar Consumption

China's oil consumption in the two decades prior to the war with Japan did not keep pace with the expansion in world petroleum consumption. Between 1914 and 1937 oil consumption in China increased by one-third while world consumption increased three times. During the period 1935-37 China's average annual consumption of petroleum products was 8 million barrels, as compared with the 1937 consumption rate of 1 billion barrels in the US, 175 million in the USSR, and 15 million in India. On a per-capita basis, the low level of China's oil requirements was, of course, even more striking.

Lack of industrial facilities combined with a relatively plentiful coal supply tend to limit China's use of petroleum. Between 1914 and 1937, however, a marked shift occured in the types of petroleum products consumed. Kerosene requirements declined from 95 percent to less than 40 percent of the total, while fuel oil and gasoline accounted for increased shares of the total petroleum market.

B. Current Consumption

The normal supply and distribution channels of China's petroleum market were altered or destroyed during the war with Japan. Although

1. Includes Manchuria, unless otherwise indicated.

advances were made in the exploitation of domestic oil reserves, they were more than offset by a reduction in imports. In general, the war period witnessed a drastic curtailment in the petroleum consumption of both free and occupied China.

Imports increased gradually after VJ-day, but the actual level of China's petroleum consumption during 1946 can be only roughly approximated. The estimate given in Table 1 is based on recorded imports on commercial and government account during 1946 plus domestic production estimated at the rate of 2,200 barrels a day. It does not take into account possible modifications introduced by the following factors: (1) a significant but indeterminate volume of smuggled imports; (2) unrecorded imports on government account; and (3) the difference between the consumption of oil from captured Japanese dumps by Chinese armies and civilians and the increase during the year in the inventories of the commercial oil companies.

Table 1. PETROLEUM CONSUMPTION IN CHINA, 1946
(In 1,000 42-gallon barrels)

Type	Commercial Imports	Government Imports	Domestic Production	Total
Gasoline	2,100	1,400	100	3,600
Liquid fuel	2,300		600	2,900
Kerosene	1,700		100	1,800
Lubricating oil	400			400
Other	100			100
TOTALS	6,600	1,400	800	8,800

Although China's consumption of all petroleum products in 1946 approximated the prewar level, requirements were substantially different from the prewar pattern. Gasoline and lubricating oils for military vehicles had prior claims on limited supplies; the prevailing shortage of coal forced power plants and other industrial facilities to convert to fuel oil; and the disruption of transport prevented an adequate distribution of kerosene to the interior.

The volume and composition of petroleum imports during 1946 imposed a severe burden on China's limited foreign exchange assets. Nevertheless, the priority that must be given to petroleum supplies for the maintenance of military and civilian transport and for the operation of power plants precludes the possibility of any sharp reduction in petroleum imports during 1947. Import quotas covering the February-April quarter of 1947 indicate an annual expenditure of US $50 million for petroleum products on commercial account alone. This does not include liquid fuel requirements for government-operated shipping or gasoline and lubricating oil requirements for military vehicles and commercial airlines. In sum, it is likely that China's petroleum consumption in 1947 will at least equal the 1946 rate of 8 to 10 million barrels.

C. Projected Trends in Petroleum Requirements, 1952

The long-term trend in China's petroleum consumption will be affected by the rate and nature of China's future industrialization.

Within the next five years, however, petroleum needs in China will be determined more directly by the following factors: fuel oil requirements for shipping; rehabilitation of China's distribution facilities; and the number of motor vehicles in operation. An appraisal of these factors in conjunction with the prewar and current pattern of China's oil consumption indicates a substantial increase ih China's use of all categories of petroleum products during the next five years. Given conditions of political stability and the achievement of a modest program of reconstruction and economic development during the period, China's oil consumption may be expected to reach an annual rate of 18 to 20 million barrels. A breakdown of this projection by product categories, together with comparable data for the prewar and 1946 periods, is given in Table 2.

Table 2. PETROLEUM CONSUMPTION IN CHINA, 1935-37, 1946, and 1952
(In 1,000 42-gallon barrels)

Period	Gasoline	Fuel Oil	Kerosene	Lubricants	Total
1935-37 Avg.	1,400	3,200	3,100	400	8,100
1946	3,600	2,900	1,800	500	8,800
1952	4,000	11,000	3,000	1,000	19,000

1. Gasoline. The level of gasoline consumption in China will be directly determined by the number and use-rate of operable motor vehicles and airplanes. In view of the current governmental import quotas on motor vehicles, it is doubtful that there will be a substantial net increase in

automotive facilities within the next five years. The general shortage of transportation equipment, however, indicates that gasoline-powered vehicles will continue to be used at a comparatively high rate. Possible reductions in military needs in the event of political stability would be offset by increased commercial requirements. On this basis, gasoline consumption in 1952 has been estimated at 4 million barrels, approximately the current rate.

2. Fuel Oil. Estimated fuel and diesel oil consumption of 11 million barrels in 1952 assumes a Chinese oil-burning merchant fleet of 1,000,000 tons. This tonnage approximates the prewar requirements for China's coastal and river commerce.

At the present time, China has about 500,000 tons of shipping, of which 200,000 tons are over-age coal-burning vessels scheduled to be scrapped by 1948 and 100,000 tons are on loan from the US. In addition to the ships now on loan, the Chinese Government expects to acquire 700,000 tons of surplus war-built vessels from the US Maritime Commission at a total cost of US $100 million. The US Government has not as yet authorized the long-term credits on which this purchase is dependent.

In the event that these US credits are extended and China is enabled to complete its domestic shipping program, the Chinese merchant marine would be composed to 1,000,000 tons of oil-burning ships whose operation would require about 9,000,000 barrels of fuel and diesel oil per year.

Although this sharp increase in liquid fuel requirements would impose a burden on China's foreign exchange resources, conversion of this fleet to coal power on any significant scale does not appear to be feasible during the next five years. Coal at present is in shorter supply than oil, and it may be expected to be scarce for some time. In addition, about 40 percent of the fleet would be diesel-powered and could not be converted. The remaining 600,000 tons of oil-burning vessels could be converted only at a cost of US $6 million and would require materials that at present are not available.

On a long-term basis, moreover, conversion of China's shipping to coal power would be a doubtful economic expedient despite possible reductions in petroleum import requirements. During the past 20 years, oil-burning ships have comprised a progressively increasing portion of the world merchant fleet. Of the present world fleet, between 80 and 85 percent is estimated to be oil-powered, as compared with 15 percent in 1920. This marked shift appears to have been dictated by long-term economies in the use of petroleum rather than by a country's petroleum resources. In general, petroleum fuels are more efficient to handle and their use maximizes cargo space.

An additional 2,000,000 barrels of liquid fuels probably will be required for overseas shipping and industrial use. This amount corresponds roughly with prewar needs. At present industrial fuel requirements are

reported to be 2,500,000 barrels a year. The use of petroleum fuels for electric power plants and other industrial facilities, however, is a temporary expedient arising out of the current coal shortage. Increased coal production during the next five years may be expected to reduce the use of fuel oil for industrial power to the prewar rate.

3. Kerosene. Rehabilitation of China's transport system during the next five years should increase kerosene consumption to the prewar rate of 3,000,000 barrels. The abnormally low level of current consumption is in part dictated by government import quotas aimed at conserving foreign exchange. To a large extent, moreover, distribution difficulties impede the supplying of kerosene to interior markets, forcing consumers to substitute less efficient bean and vegetable oils for domestic lighting. As long as the world shortage of fats and oils continues, China's balance-of-payments position would be improved if the Chinese farmer could market vegetable oils and resume the use of imported kerosene.

The possibility of lessening kerosene requirements through increased electrification during the next five years is limited. For a long period, moreover, an increase in urban electrification would be partially offset by new kerosene markets brought into the network of domestic trade by a growing transportation system.

4. Lubricants. The consumption of lubricants rose gradually in China from 75,000 barrels in 1914 to over 400,000 barrels before the war with

Japan. Although current consumption approximates the prewar rate, most of it is required for the operation of China's present transportation equipment. A return to operation of idle industrial facilities, combined with a modest industrialization program and the projected expansion of China's merchant marine, would substantially increase lubricating oil requirements. On this basis, consumption in 1952 is estimated at the rate of 1,000,000 barrels a year, or about twice the prewar level.

II. THE DOMESTIC CONTRIBUTION

A. China's Petroleum Reserves

China is not among the great petroleum-bearing areas of the world. A recent survey estimated China's oil reserves at approximately 1,600,000,000 barrels, or about 2 percent of the world total and equivalent in amount to the reserves of the Netherlands East Indies. In general, however, the inaccessibility and undeveloped state of China's oil-bearing regions limit possibilities for their commercial exploitation during the next five years.

Manchurian shale oil reserves, estimated at 2,300,000,000 barrels, provide China with a second potential source of petroleum. In the present state of world petroleum technology, oil shale cannot be worked to compete commercially with crude oil. Under the compulsion of a wartime economy, however, Japan exploited the oil shale deposits at Fu-shun with considerable success. Since Fu-shun shale is extracted simultaneously with coal, it is possible that China will continue to exploit these shale reserves on a significant scale.

Petroleum experts have for years been aware of the possibility that the major coal-bearing nations of the world such as the US, the USSR, Canada, and China will some day be the principal sources for liquid fuels. At present, however, extraction of oil from coal is not commercially feasible in China. The existing Japanese-built coal liquefaction plants in Manchuria and the Chinese pilot plant in western Szechwan will in all probability not be operated on an appreciable scale in the near future.

B. Petroleum Production

1. Past Production. Before 1937, petroleum output in China proper was insignificant. Small amounts of crude were obtained for local consumption from oil seeps in northern Sinkiang Province in the vicinity of Ti-hua (Urumchi), and from salt wells about 100 miles west of Chungking in Szechwan province. The Standard Oil Company was interested for a time in the oil fields at Yen-ch'ang in northern Shensi Province, but gave up exploratory work in 1916 because of the unpromising nature of the area. Similar experimental work by the Chinese Government also failed to produce substantial results. An official Chinese source has estimated that China's 1935 output of crude oil was about 3,000 barrels.

The most notable wartime petroleum development in China proper was the opening of the Yu-men oil fields (39-46N, 97-33E) in northern Kansu Province. Although limited by poor transportation facilities and inadequate storage and refining facilities, production in these fields is reported to have reached 500,000 barrels in 1944.

The Russians in 1939 began development work at the Tu-shan-tze fields (44-15N, 85-00E) in Sinkiang, and by 1942 these fields were yielding about 150,000 barrels annually. The Russians withdrew in 1943, dismantling the refinery and capping up the producing wells. An American observer declared that by the end of August 1944 the Chinese had succeeded in uncapping six of the wells and were producing crude oil at an annual rate of 25,000 barrels. The remoteness of these fields, however, limited their usefulness in supplying China's petroleum needs.

Other war-period petroleum developments in China proper were of negligible importance. Szechwan oil production in 1943 was reported at 450 barrels a year, and the Shensi fields were similarly unproductive.

In Manchuria, the Japanese had some success in developing a shale-oil industry at Fu-shun, but their petroleum explorations in other areas yielded meager returns and their attempt to produce synthetic petroleum from coal was in large measure unsuccessful. The subsidized shale oil industry at Fu-shun realized over 400,000 barrels in 1935 and attained its peak production of 1,300,000 barrels in 1943. Although this output was large in comparison with the production of China proper during the war period, it was not on the scale originally projected by the Japanese.

Production of crude oil and casinghead gasoline in Formosa declined between 1940 and 1944, presumably because of dwindling oil reserves. Total petroleum output in 1944 was less than 40,000 barrels.

2. Current and Prospective Output. In June 1946, responsibility for China's domestic petroleum production was assumed by the China Petroleum Corporation, a government monopoly operating under the National Resources Commission. Postwar output, in large measure affected by unsettled political conditions, has been unsatisfactory. Although official data have not been released, total production of all petroleum products in 1946 was reported to have been less than 800,000 barrels. Kansu output, which amounted to 600,000 barrels, could not be transported to areas of critical petroleum shortages. Formosan oil production was negligible, and Fu-shun shale output amounted to about 75,000 barrels.

It is estimated that, with adequate production equipment and distribution facilities, China's annual output of petroleum including Fu-shun shale oil, could be increased to about 5,000,000 barrels within five years. This level of output could satisfy one-fourth of China's estimated requirements in 1952. Possible yields from present and future petroleum explorations have not been taken into account in the estimate. A comparison of estimated output in 1952 with past and current production data is shown below.

Table 3. PETROLEUM OUTPUT IN CHINA, 1935, 1943, 1946, and 1952
(In 42-gallon barrels)

Year	China Proper	Manchuria	Formosa	Total
1935	negligible	450,000	100,000	550,000
1943	600,000	1,400,000	40,000	2,040,000
1946	700,000	75,000	negligible	775,000
1952	4,000,000	1,000,000	100,000	5,100,000

According to American petroleum experts, annual output from the Yu-men fields in Kansu could be increased to over 3,500,000 barrels. Such an expansion would, however, require a substantial investment in additional drilling, refining, and storage equipment and in the development of adequate distribution facilities. These fields, about 1,200 airline miles distant from Hankow (Han-k'ou), at present are accessible only over poor highways. Construction of a pipeline to Hankow appears to be the only feasible method of bringing Kansu oil to centers of petroleum consumption.

China is attempting to increase oil output in Sinkiang above the 1944 output level of 125,000 barrels. Future production in this area may be greatly increased if arrangements for joint Sino-Russian exploitation can be worked out. Increased output from this area, however, would probably not contribute materially to China's petroleum requirements, since output would be shared with the USSR and, in addition, these fields are remote from China's petroleum-consuming centers. Available information indicates that other petroleum-bearing areas in China proper hold little promise for significant commercial exploitation within the next five years. If reserves hold out in Formosa, output may reach the prewar level of 100,000 barrels, which would take care of one-fifth of the areas' normal requirements.

The shale oil distillation plants at Fu-shun are virtually intact, but their usefulness depends on the restoration of the Fu-shun coal mines

and on the achievement of political stability. Despite the high cost of producing oil from shale, the Chinese appear determined to operate these facilities on a significant scale. Since the shale, as a byproduct of coal mining, would in effect be free and since initial investment cost would be confined to the expense of repairs, the total cost of shale oil to the Chinese may not be too high. Output in these plants could conceivably be increased within five years to about 1,000,000 barrels a year, or half their potential capacity and slightly less than the peak production rate of 1,300,000 barrels achieved by the Japanese in 1943.

The coal liquefaction plants built by the Japanese in Manchuria probably can be written off as a potential source of petroleum to China. Restored operation of these plants would require large outlays for machinery and repairs because of Soviet removals, civilian looting, and subsequent deterioration from undermaintenance. In any event, the usefulness of these plants to China would be questionable. Despite an investment of almost US $60 million in these plants, peak production achieved by the Japanese was less than 60,000 barrels a year at a cost several times that of producing fuels from crude petroleum or oil-bearing shale.

C. Petroleum Substitutes

During the war China made increasing use of alcohol, tung oil, and other vegetable oils as petroleum substitutes, deriving from these sources perhaps 25 percent of its total liquid fuel requirements. The National

Resources Commission operated 10 alcohol plants in West China with a capacity of about 70,000 barrels a year, as well as vegetable-oil cracking plants that processed gasoline from tung oil. In addition, the Japanese managed to obtain a limited amount of synthetic lubricants from Manchurian soybeans.

Under normal circumstances, however, these substitute products are used chiefly to supply local fuel needs in the interior and have only a limited importance in relation to China's total requirements. Alcohol, tung oil, and vegetable oils cannot compete successfully with the cheaper and more efficient products derived from petroleum, whereas the export of tung oil and vegetable oils provides China with an important source of foreign exchange.

D. Petroleum Refining

China's petroleum refining capacity increased greatly as the result of wartime construction. Total annual capacity in China proper, Manchuria, and Formosa (without including Japanese-built coal liquefaction facilities) exceeded 12,000,000 barrels at the end of the war, although actual production during the war was far short of this rate. Annual capacity and peak war production of these plants are shown in Table 4.

Table 4. CAPACITY OF CHINA'S PETROLEUM FACILITIES AT THE END OF THE WAR AND PEAK WAR PRODUCTION
(In 42-gallon barrels)

Refinery	Capacity	Peak War Production
China Proper:		
Yu-men, Kansu	1,300,000	500,000
Wu-su, Sinkiang [a]	360,000	150,000
Manchuria:		
Fu-shun shale plants (2)	2,000,000	1,300,000
Dairen	1,100,000	100,000
Army fuel depots, Chin-hsi & Ssu-ping-chieh	1,600,000	100,000
Formosa:		
Takao refineries (2)	6,200,000	... [b]
TOTAL	12,560,000	

a. Partially dismantled in 1943.
b. Data not available.

Refining facilities erected near the Yu-men fields in Kansu between 1938 and 1940 have not been utilized at even near-capacity levels. In 1944 production reached 500,000 barrels, or about 40 percent of capacity. Future development of Kansu crude production, however, would require the construction of additional refining capacity.

In Manchuria, the Japanese-built shale oil refineries at Fu-shun were not substantially damaged during the period of Soviet occupation, but future production at these plants is dependent on the recovery of Fu-shun

coal mining. The Pauley Mission report estimated that remaining shale mining equipment would permit oil production of about 700,000 barrels a year. Output in 1946 was less than 100,000 barrels.

Future operation of the natural petroleum refineries in Manchuria will depend on the importation of crude oil, since no important indigenous oil reserves are known to exist in the area. The refinery built by the Japanese at Dairen, with a rated capacity of over 1,000,000 barrels, is believed to be virtually undamaged. Fuel depots constructed by the Japanese Army at Chin-hsi and Ssu-ping-chieh would require considerable restoration expenditures. Capacity at the Chin-hsi depot was almost 1,000,000 barrels, and work had been partially completed on a pumping station and pipeline from the nearby port of Hu-lu-tao. The Pauley Mission estimated that an expenditure of US $300,000 could restore the petroleum facilities to an operable state and complete the pipeline installation from the port to the refinery. Restoration of the Ssu-ping-chieh facilities, with a capacity of 700,000 barrels, appears to be more questionable. The largest of the two plants in this depot, accounting for most of the capacity, was not entirely completed. According to the Pauley Report:

> "This plant could be used for processing crude oil for gasoline and heavier fuels but the plant contains little treating equipment or facilities for cracking and further refining crude oils. The main function of the plant was to hydrogenate crude oil residues for aviation and motor gasolines. The location of the plant, about three-hundred miles from ports into which crude oils could be imported, would necessitate rail transportation, which may be difficult under present congested conditions." [1]

1. Pauley, Edwin W., Report on Japanese Assets in Manchuria to the President of the United States, July, 1946, p. 167.

The two Takao refineries in Formosa, with a combined capacity of over 6,000,000 barrels a year, are by far the most important petroleum facilities acquired by China as a result of the Japanese surrender. The larger of the two refineries, with a yearly capacity of over 5,000,000 barrels, comprises three identical units and began operations in 1944; construction of the smaller plant was near completion at the end of the war. In both cases war damage is reported to have been minor, although some equipment was removed from the larger refinery by the Japanese.

Responsibility for rebuilding and operating the Takao refineries was assumed by the China Petroleum Corporation. Most of the material required for the rehabilitation of these refineries was reported to be available locally, and production originally was scheduled to begin in February 1947 at the rate of approximately 3,000,000 barrels a year and to reach capacity by the end of the year. Since prewar domestic requirements in Formosa averaged about 700,000 barrels a year, this rate of output would provide a sizable surplus for shipment to the mainland. At the end of 1946, however, production plans were revised downward and appeared to include only the larger of the two refineries. It seems possible that the smaller plant in part had to be cannibalized to obtain needed equipment for restoring the larger refinery and that, as a consequence, refining capacity at Takao has been reduced to about 5,000,000 barrels a year. At any rate, the revised plans did not go beyond a yearly

production rate of 3,000,000 barrels. Since the China Petroleum Corporation already has contracted to purchase over 2,000,000 barrels of crude from Iran for delivery in 1947, this planned rate of output may be approached during 1947.

III. PROSPECTS FOR FOREIGN PARTICIPATION

Before the war, foreign petroleum companies dominated China's petroleum market. Domestic requirements were supplied mainly through petroleum imports, which averaged over US $30,000,000 a year during the period 1935-37. Distribution of these products was accomplished through the extensive organizations maintained in China by American and British petroleum companies. Petroleum installations and equipment constructed in China by foreign oil companies comprised an investment valued at more than US $100 million, and included terminal facilities and storage centers at most cities along the coast and on the Yangtze River as far as Chungking as well as small river fleets for local transport of petroleum products. The Japanese owned relatively few distribution facilities in China proper, but their oil monopolies in Formosa and Manchuria virtually barred foreign competition.

These foreign-owned facilities, however, suffered extensive damage during the war. The fleets of oil tankers and barges appropriated by the Japanese were almost wholly destroyed, and the storage centers were dismantled or bombed out. The Standard-Vacuum Oil Company has estimated

that its prewar marketing equipment in China, valued at US $35 million, was 95 percent destroyed. Of the prewar storage capacity of over 7,000,000 barrels owned by the three major foreign oil companies in China, less than 15 percent remained intact at the end of the war. During 1946, the US Army-Navy Petroleum Board aided American oil companies in reestablishing themselves in the Chinese petroleum market. Under this program, which was discontinued at the end of the year, the military services transported and stored petroleum shipments until they could be sold to private companies for resale to consumers. Although storage facilities have in part been rehabilitated, considerable new investment would be required to restore the prewar distributing plant. In this context, the possibilities of the future petroleum market in China and the attitude of the Chinese Government toward foreign participation in that market are of special significance.

A. Import Requirements and Investment Possibilities

China's total petroleum requirements have been projected at the rate of 18-20 million barrels a year by 1952, primarily on the assumptions that the government will acquire 1 million tons of oil-powered shipping and that political stability will be achieved during the period. Since domestic production is not likely to exceed 25 percent of projected requirements, approximately 15,000,000 barrels a year, or almost twice the prewar amount, would have to be imported to meet these needs.

The composition of petroleum imports, however, will in all likelihood be substantially different from the prewar pattern. China's acquisition of Japanese-constructed refining facilities in Formosa and Manchuria affords it the opportunity to import lower-priced crude oil instead of refined petroleum products. This substitution would reduce the foreign exchange burden of petroleum imports, but it can be effected only on a limited scale during the next five years. On the basis of optimistic assumptions, the Takao facilities may refine crude oil at a capacity rate of 5 million barrels by 1952, and an additional 1 million barrels may be realized from Manchurian refineries. It would still be necessary to import between 8 and 9 million barrels of refined petroleum in addition to the 6 million barrels of crude. In both value and quantity terms, therefore, China's petroleum import requirements may exceed prewar levels.

Considerable new investment would be required for the development of China's petroleum industry, and, under favorable circumstances, foreign participation in these outlays could be large. Restoration of the prewar distributing facilities of foreign-owned oil companies would alone entail expenditures estimated at US $30 million[1] to US $100 million.[2] These estimates do not take into account the increase in facilities that

1. Department of State estimate.
2. Standard-Vacuum Oil Company estimate.

presumably would be required by a significant expansion in the rate of China's petroleum consumption. A sizable increase in the exploitation of Kansu petroleum reserves would require the drilling of new wells, additional refining capacity, and probably the construction of a pipeline. Estimates of the investment required for this equipment range from US $40-60 million[1] to US $100 million.[2] Additional investment expenditures would be necessary in order to operate the Takao refineries at capacity levels and to rehabilitate refining capacity in Manchuria.

The attractiveness of China's petroleum market to foreign oil companies, however, may be diminished. In contrast to the prewar situation, China's present and near-future domestic petroleum facilities are now of sufficient importance to increase the force of competition in the domestic market. Of greater significance to the oil companies, however, is the possibility that the Chinese Government may invoke discriminatory legislation against them that would make their present or future petroleum investments unprofitable.

B. The Government's Petroleum Policy

1. Recent Developments. Negotiations between the Chinese Ministry of Economic Affairs and the three major foreign oil companies (Standard-Vacuum, Asiatic Petroleum, and Texaco) were begun in August 1945. It

1. Department of State estimate.
2. Standard-Vacuum Oil Company estimate.

appears that tentative agreement was reached on broad proposals that provided for investment by the three foreign oil companies both in the restoration of their prewar distributing plant and in joint Sino-foreign exploitation of the Kansu and Chinghai oil reserves. Effectuation of these agreements, however, was made contingent on assurances that the resulting foreign investments would not be endangered by Chinese governmental competition or by restrictive legislation. In this context, the question of whether the Takao refineries would be included in the joint enterprise remained an unsettled issue of strategic importance.

Subsequent actions taken by the government in 1946, however, indicated that the negotiations were exploratory in nature and not a reflection of official Chinese policy on petroleum. The following measures appear to evidence the government's intention of entering the petroleum industry and minimizing foreign participation in the Chinese petroleum market:

a. In February 1946, the National Resources Commission purchased surplus refining equipment from the War Assets Corporation at a cost of US $1,400,000. These facilities purportedly were to be used in the construction of a coastal refinery to process imported crude, but this plan was later abandoned.

b. In June 1946, the government formed the Chinese Petroleum Corporation under the administration of the National Resources Commission. Its funds are government-subscribed, and its charter places an absolute ban on foreign capital. Functions of this government monopoly are the exploration, production, refining, distribution, and marketing of petroleum products in China, and its properties include the Takao refineries, other Japanese-built facilities,

the Kansu development, and various petroleum distribution and storage facilities. Originally, it had the power, as a corporation, to compete with foreign oil companies in the distribution and marketing of petroleum products in China and at the same time to exercise import, price, and other controls over its competitors. Toward the end of 1946, however, these latter controls over the operations of foreign oil companies were removed from its jurisdiction.

c. During 1946, the National Resources Commission purchased 4 oceangoing and 15 harbor and river tankers. These vessels are to be operated by the China Tanker Company, formed in February 1947 under the joint control of the government-owned China Petroleum and China Merchant Steam Navigation Companies. The small tankers are to be used for delivery of petroleum products to inland river ports, and the sea-going vessels for the transport of crude oil from Iran to Takao.

d. The development of China's river and coastal fleet was accompanied by an announcement that traffic along the China coast and on the Yangtze River would be limited to vessels flying the Chinese flag. Because of the shortage of available shipping, these rulings were later modified on a temporary basis. The oil companies are now chartering their vessels to the government and then operating them under recharter provisions. It seems clear, however, that the government intends eventually to ban foreign flag vessels from China's river and coastal traffic. This will force oil companies attempting to continue a distributing business in China to register their shipping under the Chinese flag and subject them to possible discriminatory actions favoring Chinese competitors.

e. In January 1947, it was reported that foreign oil companies would not be granted foreign exchange for the importation of materials and equipment required for the restoration of their petroleum facilities in China. The government's position apparently is that such reconstruction expenditures should be made through new capital investment and not out of current profits. Since the remittances of profits and administrative expenses are delayed by the operation of government controls, the foreign oil companies are forced to accumulate large CN currency balances that are subject to the risk of further exchange depreciation.

Despite these governmental actions, negotiations aiming at a joint Sino-foreign petroleum enterprise have continued. These more recent conferences appear to be based on the assumption that the Takao refineries for the present are outside the scope of joint enterprise. The oil companies, however, desire a tentative Chinese petroleum policy that would (1) limit Takao output to a rate justified by existing operable facilities and confine rehabilitation plans at the Hu-lu-tao refineries in Manchuria to minimum maintenance expenditure; (2) permit them to market petroleum products in China free from discriminatory government actions; and (3) give them the opportunity to compete on equal terms in selling crude oil to Takao. Discussions along these lines are in process, but, in addition, primary emphasis is now being placed on plans to speed exploition of indigenous oil reserves in Kansu and Chinghai. In January 1947, Standard-Vacuum and Shell, acting as a bargaining unit, agreed to send a preliminary survey party to explore the oil possibilities in Kansu and Chinghai and to determine how much drilling would be required to prove the oil reserves in the Yu-men fields. These findings would then serve as the basis for drawing up an integrated program for future joint exploration and development of the fields in the event that adequate oil reserves were found to exist and both principals could agree on the conditions of joint enterprise.

2. General Considerations. The extent of future foreign participation in China's petroleum market will depend primarily on the petroleum policy adopted by the Chinese Government. As yet, a definite policy has not been evolved. Postwar negotiations between government officials and representatives of the foreign oil companies have not resulted in binding commitments, and the government's policy, as reflected in these conferences, has been subject to change. More recent negotiations seem to indicate that China is desirous of speeding the exploitation of domestic petroleum resources and would welcome foreign participation in their development. Moreover, there is still a possibility of eventually including Takao refining facilities in a joint petroleum project, despite the formation of the China Petroleum Corporation. The disappointing results obtained thus far in China's operation of its domestic petroleum facilities, combined with the progressive deterioration since VJ-day in its ability to finance programs of reconstruction and economic development, may have contributed to this change in attitude.

The government, however, must reconcile widespread popular support for a nationalistic petroleum policy with the limited economic recourses at its disposal to implement such a policy. If the petroleum industry were planned as a domain for Chinese capital exclusively, its development would be subject to considerable delay. Such a program would involve

large expenditures for the purchase of existing foreign-owned petroleum facilities in China and for the reconstruction and expansion of producing, refining, storage, and distribution equipment. Although adequate data are not available, preliminary estimates indicate that an investment exceeding US $200 million might be required to obtain a significant petroleum industry in China. It is probable that this would still leave China with a petroleum deficit that would have to be filled by imports. At the present time, the government's precarious budgetary and foreign exchange position precludes the possibility of an investment on this sale.

China's petroleum policy, moreover, cannot be divorced from considerations regarding its plans for over-all economic development. In general, China is faced with the problem of allocating scarce capital resources among various types of developmental projects. In this respect petroleum development, without foreign participation, would appear to be a poor choice, since it requires a large volume of capital investment in relation to value of product. In addition, a nationalistic petroleum policy would discourage other sources of private foreign capital and probably would react unfavorably on prospects for credits from the US Government and the World Bank. The net effect would be a reduction in the rate of China's over-all economic development.

It seems likely, therefore, that China's petroleum policy will include provisions for joint Sino-foreign enterprise. The area of bargaining resolves itself into what minimum assurances China must grant in order to obtain foreign capital and technical aid in the development of its petroleum industry.